



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,177	12/05/2001	Junji Komeno	Q67579	2265

7590 10/23/2003  
SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, NW  
Washington, DC 20037-3213

EXAMINER

KACKAR, RAM N

ART UNIT PAPER NUMBER

1763

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/002,177

Applicant(s)

KOMENO ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 28 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- 9, 12- 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of Yasuki Nakao (JP 03069119) and Ryozo Sato (JP 03171616).

AAPA discloses a MOCVD film forming device with a susceptor in the form of a disk, a base plate positioned below the susceptor and rotatably retaining the susceptor and rotating means for the susceptor, rotating means for the substrate, the substrate film forming plane facing downwards and two temperature control devices (Fig 5).

AAPA does not disclose the specific rotation means for the substrate and the susceptor.

Yasuki Nakao discloses for a film-processing device a rotation generating section for substrates (Fig 2 - 4) through the susceptor, stationary gear and drive (revolution input section) for the susceptor. Yasuki Nakao does not disclose the drive for the susceptor at its periphery and bearing between the base plate and rotating susceptor.

Ryozo Sato discloses drive for the susceptor at the periphery (Fig 1-21) and the bearing between the base plate and rotating susceptor (Fig 1-14).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to have a drive (spur gear type) at the periphery of the device of Yasuki

Nakao so as to have a compact susceptor with low profile and have space for temperature control above the substrates as in Ryozo Sato.

Claims 12-16 and 27 are directed to an intended use. However the intended use is supported by the disclosure.

Claim 10, 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art in view of Yasuki Nakao (JP 03069119) and Ryozo Sato (JP 03171616) as applied to claim 2 and further in view of John S. Wollam (US 3783822).

Ryozo Sato discloses some parts of the susceptor made of carbon (Fig 1-31) but do not disclose gears and bearings to be made of carbon.

John S. Wollam discloses moving parts made of carbon (Col 2 lines 24-29).

As carbon graphite is stable at high temperature it would have been obvious to use bearings and drive gears of carbon also for their strength, toughness and ability to with stand high temperature.

3. Claims 11, 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art in view of Yasuki Nakao (JP 03069119) and Ryozo Sato (JP 03171616) as applied to claim 1 and further in view of Bryan D Schmidt (US 5343938).

Yasuki Nakao or Ryozo Sato do not disclose an opening at the center portion.

Bryan D Schmidt discloses opening at the central portion closed by a material of the susceptor for the purpose of controlling thermal conductivity and in turn uniformity (Fig 1- 23).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to have an opening in the susceptor covered by carbon so as to improve thermal uniformity.

4 Newly submitted claims 28 and 29 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: These claims are directed to a product of process used on this apparatus.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 28-29 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

#### ***Response to Amendment***

Applicant's arguments filed 9/3/2003 have been fully considered but they are not persuasive.

Applicant argues that in Yasuki Nakao there is no disclosure of the rotation of substrates through rotation generating section at outer periphery.

In Yasuki Nakao in Fig 2 gear 4 is attached at its periphery to a fixed gear having teeth at its internal periphery. When the stage is rotated by motor 5 the susceptor revolves around its axis carrying the substrates 2 in their pockets. By the interaction of gears 4 to the fixed gear the substrates rotate. Clearly the rotation generating section is at the periphery. The shaft is merely a mechanical connection of the gear to the substrate holder. Ryozo Sato modifies the drive of the susceptor from being one driven through the center to one being driven through a periphery thus making the shaft at the center and any disadvantage arising out of that obsolete.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK

GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700